GEOGRAPHIC SCHOOL BULLETINS

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VOLUME XXXVI, NUMBER 29, May 12, 1958 . . . *To Know This World, Its Life*

► Brazilia

► Canary Islands

► Capital Statues

► Desert Candids

► Safe in the Air

FAMILY PORTRAIT of mule deer—Mother, Father, and two fawns—was snapped from a wildlife blind in Arizona's Sonora Desert. (See story on page 356)

LEWIS WAYNE WALKER

RENEWAL REMINDER

As the 1957-58 school year draws to a close, we remind you that your subscription may be expiring with the next issue. If so, save trouble for yourself and us by renewing now and insuring uninterrupted delivery of the first issues next fall. See page 350 for rates.

and low, clean lines seem a design from the 21st century.

On the city's highest point—in the center of the fusilage—a television tower will rise. Then a circular sports center and municipal plaza will extend toward the tail of the plane. The railroad station forms the tail itself.

Botanical gardens, a horse club, and a zoo lie just outside the fusilage plan. It will be hard for any resident to pass from one section to another without crossing refreshing park land. Pedestrians and cars will be separated along two-level streets in the business section.

EMBASSY OF BRAZIL

The notion of shaping a capital out of empty country is not new. The United States built Washington on the green banks of the Potomac. Australia fashioned Canberra on pasture land in a lonely mountain valley.

Even Brazil has a precedent right in the state of Goiás. Goiânia, state capital, was deliberately built at a crossroads of the sky—an airport that served crossing air lanes. Now 25 years old, it boasts sightly boulevards and a pre-planned parking place. It administers a frontier state, nearly the size of Texas.

Once under way, Brazil's capital will have ample water. Surrounding farmlands will pour corn, beans, potatoes, citrus fruits, bananas, and green vegetables into the city markets.

Moreover, industries seem destined to follow the government into this and other interior locations. The neighboring state of Minas Gerais is rich in gold, diamonds, manganese, bauxite, and mountains of iron ore—treasures to tempt all who care to pull up stakes along the coast of Brazil and head for the sunset.

Says President Kubitschek, "We must occupy our country, march to the west, turn our backs to the sea, and stop staring fixedly at the ocean—as if thinking of departing."

That carries the wondrous ring of how the United States became great. S.H.

UMI

Brazil Builds a New Capital

BRAZIL is raising a new seat of government from the ground up. Named Brazilia, it takes shape 600 miles northwest of the present capital, Rio de Janeiro. Workmen toil among the slashed trees and scarred hills of the site, below, turning a wilderness into a city that will eventually hold half a million people. Builders and architects are sweating out a target date—April 21, 1960. That's when the government of Brazil is supposed to move in. Eventually, Brazilia will sit in a 400-square-mile Federal District, carved from the interior state of Goiás. Until the workmen came it was a crushingly lonely area. In a few years' time, say the city planners, it will be the center of economic gravity for a bright new era of Brazilian development.

NGS MAP

The building of Brazilia fulfills an old dream. José Bonifácio, Brazil's "Patriarch of Independence," recommended "a central city in the interior of Brazil as the seat of Regency," back in 1821. But controversy has long surrounded the proposal. Under the present constitution, the transfer of the capital is allowed.

What's wrong with Rio de Janeiro? many Brazilians ask. Certainly its harbor ranks among the world's loveliest, its cosmopolitan charm is renowned. But even Rio's residents, Cariocas, as they're called, admit that their city is short of water and electricity. Its spectacular mountains crowd it against its bays. The only way it can expand is to blast those encircling peaks out of the way.

Moreover, Brazil needs to populate its vast interior and exploit its resources. Already Brazilia, with temporary quarters housing some 10,000 city builders, is being eyed speculatively by people in Brazil's drought-ridden northeast, by dwellers in the jungled Amazon Basin. Surrounding areas feel electrifying new vitality. Highways and railroads are stretching out from the site to allow bulk transportation of building materials.

A Brazilian architect, Lúcio Costa, submitted the prize-winning plans for Brazilia. His scheme calls for a city perched on a 3,500-foot plateau where the climate is perpetually springlike. A vast, man-made lake will curl part way around the metropolis. The city will be shaped like a swept-wing airplane, its wingtips brushing the lake shore.

Each wing will contain city blocks of apartments and dwellings. Offices, stores, banks, hotels, a cathedral, recreational and cultural centers, and a university will rise where the wings join the fusilage. Government buildings of Brazil's three governmental powers, executive, legislative, and judicial, are to be grouped around a plaza between the "nose" and "cockpit." Ministries will line an esplanade near by. The Presidential Palace, now nearing completion, below, will be bathed by the lake. Its arched columns

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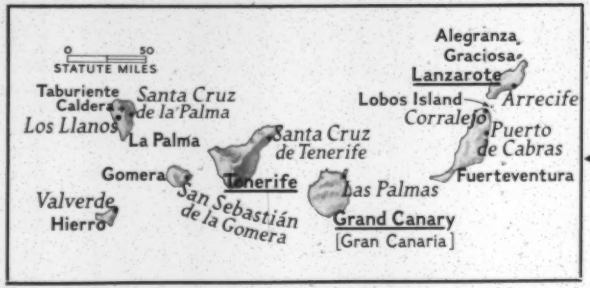
Taburiente Caldera, an extinct volcano more than a mile deep and three miles across. Highest point of all the islands is Teide Peak, on Tenerife, 12,162 feet high.

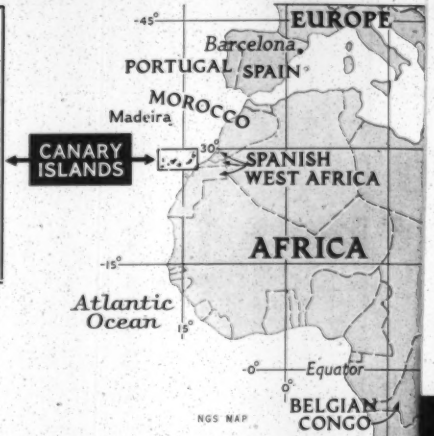
Charm is widespread. Camels, imported from Spanish West Africa, bear many islanders' burdens. One island group communicates with fellows across hilly terrain by an intonated whistle language. In Icod, on Tenerife, grows the weird dragon tree, native to the Canaries. One shows a base of 60 feet—and 3,000 years of age. Some islanders believe their homelands were the abode of the fabled Hesperides, nymphs who with a fire-breathing dragon protected the golden apples.

Some 200 homes in Artenara, on Grand Canary, are cut into the sides of a deep gorge. Cheerful cave dwellers bake bread, right, greet visitors with hospitality. They say their homes are warm in winter, cool in summer. Besides, when families grow up, a pick and shovel quickly provide additional space.—S.H.

FRIENDLY rival ports, Las Palmas and Santa Cruz de Tenerife, export bananas and tomatoes, besides vying for tourists. Liveliest rivalry, however, lies in creating living carpets of roses, dahlias, geraniums, and lilies for village streets (left) during the annual summer festival of Corpus Christi. Schoolteachers, fishermen, housewives, priests, and doctors reverently shape cartloads of petals into religious figures and geometric patterns. One flowered path, half a mile long, is covered by a three-inch layer of fragile petals, lovingly arranged for an hour of glory.

EARLY EUROPEAN explorers found the islands peopled by warlike Guanches, some of them seven feet tall. Roaming dogs inspired the name Canary from the Latin *canis* (dog). Little yellow finches, native to these and other Atlantic islands, were named canary birds. Spain took possession of the Canaries in the 15th century and held on despite attacks by Sir Francis Drake and Lord Nelson, who lost an arm off Tenerife.





CANARY ISLANDS—All Visitors Welcome

Photographs by Jean and Franc Shor, National Geographic Staff

HERE is the fabled landfall, Santa Cruz. These harbor-rimmed buildings against mountain backdrops (left) seem plucked from a travel poster of old Spain. For Spain lives again on its outflung Atlantic parcels, the "Fortunate Isles," the Canaries. More and more vacationing thousands "discover" them, crouched in the Atlantic 60 to 300 miles off northwest Africa. More than six thousand ships a year nose into Las Palmas, Grand Canary's chief port. There, some quarter of a million passengers troop down gangways to visit the ocean crossroads, famed since Columbus paused there to repair the *Pinta's* damaged rudder. Visitors absorb lilting Spanish speech, gentle climate, hospitality, inexpensiveness, and flowers.

Grand Canary and Tenerife bear heaviest populations among the 13 islands and nearly 1,000,000 inhabitants. Islanders live by farming, fishing, and trade within a meager 2,808 square miles. Enthusiasts call outlying La Palma the most scenic. Here, dense pine forests and waterfalls, accessible by excellent roads, lie dominated by famed

DORIS WALKER

3. *Above:* Crosslike figure remembers those drowned in an ocean disaster.

4. *Left:* Gulls, stretching their wings above tumbling waves, pay honor to other lives lost at sea.

5. *Right:* Washington's newest statue honors a South American liberator and patriot. He rides near the Pan American Union. Know who he is?

ROBERT F. SISSON

6. You'll need little help here. A famous American, he stands at the Tidal Basin.

EDWARDS PARK

VOLKMAR WENTZEL

7. *Above right:* An able member of the first U. S. cabinet.
8. *Below:* Capitol basement holds these three stern ladies.

B. ANTHONY STEWART AND JOHN E. FLETCHER

ANSWERS

1. United States Marine Corps Memorial marks Photographer Joe Rosenthal's picture of flag raising on Iwo Jima. In background, right to left, stand the Lincoln Memorial, Washington Monument, Capitol.

2. Mischievous Puck, English household spirit, used by Shakespeare in his play *A Midsummer Night's Dream.*

3. *Titanic* Memorial, pays homage to 1,517 lives lost when the liner sank off Newfoundland, in 1912.

4. Navy and Marine Memorial, on the wide parkway leading to Mount Vernon.

5. Simon Bolivar, hero who freed Venezuela, Colombia, Ecuador, Peru, and Bolivia from Spanish control.

6. Thomas Jefferson, in the Jefferson Memorial.

7. Alexander Hamilton stands on the south steps of the Treasury Building.

8. Pioneers for women's rights were, left to right, Lucreia Mott, Susan B. Anthony, and Elizabeth Cady Stanton.

UMI

MERLE SEVERY (TOP); ROBERT L. BREEDEN (BELOW AND RIGHT)

All Photographs by National Geographic Staff Members

1. *Above:* Overlooking the Potomac River, with other well-loved monuments beyond it, this statue immortalizes in bronze a famous World War II photograph.

2. *Right:* A familiar figure from English folklore kneels beside a fountain in the garden of the Folger Shakespearean Library, next to the Library of Congress on Capitol Hill.

So You Think You Know Washington?

AS every spring, thousands of high school seniors are now collecting their traditional reward for years of study—a trip to Washington, D. C. If you are one, you are finding a vast assortment of sights to see. The variety of statues alone, in this city of monuments, is bewildering. No one will forget, of course, Abraham Lincoln, left, who sits pondering the ages, bathed in the pale light of the Lincoln Memorial at night. But how many others on these pages can you identify? Read the clues supplied with each picture. Then call on your memory. Don't peak at the answers, right, until you finish the quiz.

DORIS WALKER

During months spent studying water hole visitors, naturalists have disproved many old ideas. One is the belief that deer kill rattlesnakes on sight. The dainty doe, below, seemed to have little fear, and no hostility, toward the rattlesnake intentionally placed near her feet.

Like diplomats, animals at the water hole observe protocol. Size is not the deciding factor. Babies seem to boss their elders, though when the hole is crowded full grown deer elbow the youngsters out of the way. In a battle between the sexes, the doe always wins. She slashes at the buck with sharp front hoofs. Displaying an animal chivalry, the male refuses to use his antlers.

The sly, graceful desert gray fox, below left, easily out-maneuvers the deer who try to chase him away during a crowded session at the drinking fountain.

But the undisputed monarch of the water hole is the giant Colorado River toad (below, center). As he bounces toward the popular watering spot, animals watch in unreasoning terror, crowding to the edge of the hole. Even the ferocious peccaries (native wild pigs of the region) steer clear of this popeyed seven-inch-long trencherman.

Feathered visitors usually come at sunset. The robin-sized sparrow hawk, right, is the most common of the desert falcons. A cactus crown becomes a banquet table as he dines on a mouse.

Rabbits and squirrels dart out for a sip at dusk or dawn, while horned owls and other flesh eaters are still asleep. An ill-timed visit would bring sudden death to the cottontail, right. K.C.

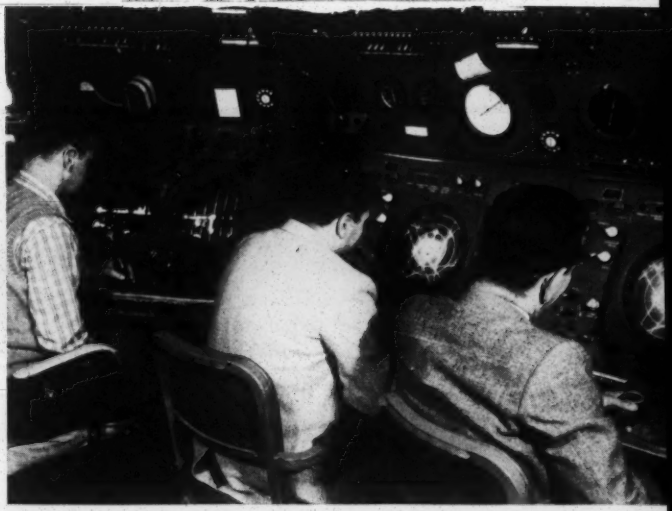
Animals Pose at Desert Water Hole

CANDID CAMERA "SHOOTS" ROVING ARIZONA WILDLIFE

OBLIVIOUS to its most feared enemy, man, a family of deer slips quietly up to a water hole at the bottom of a shallow, boulder-strewn ravine in the Arizona desert. Cameras concealed behind windows of a wildlife blind come into focus, almost within reach of the animals. Suddenly—a blinding flash of light, bright as Arizona's noonday sun. Shutters click. Startled deer bolt into the night. But a rare animal portrait has been made (cover).

Fifteen miles from Tucson, Arizona-Sonora Desert Museum officials have built a naturalist's dream—a small wildlife blind, carpeted on walls and floor to deaden sound, perched at the edge of a man-made water hole. Its exterior walls gleam with flashbulb reflectors linked by a wild crisscross of wires. It offers a perfect vantage point for observing and photographing wildlife in this arid region (*National Geographic*, February, 1958).

PHOTOGRAPHS BY LEWIS WAYNE WALKER



RADAR screens give controllers an electronic view of planes approaching Washington National Airport in dirty weather. Two search screens, at the right, pick up planes and allow controllers to keep them three miles apart. Precision approach radar, at left, shows a plane's glide path and exact course as it aims for the instrument landing runway. Controller monitors its approach.

aims it and flashes a series of green lights —"Get moving."

On this day, weather won't allow departing planes to fly VFR (visual flight rules). So another controller in the Washington tower keeps in radio contact with each outgoing plane until it is on course. Then the controller calls the Washington Air Route Traffic Control Center, one of 29 centers scattered across the country. In each of these, highly trained controllers make certain that each plane flying on instrument flight rules (IFR) occupies its own reserved block of air 25 to 50 miles long and 2,000 feet thick. When the plane reaches its destination, the local controller, up in the tower, brings it in (below).

When a plane has to make its landing in bad weather, electronics come to the rescue. Radar spots the approaching plane. The pilot has his choice of following an Instrument Landing System (ILS) or of being "talked down" by a controller scanning a precision approach radar screen. If the pilot chooses ILS, he flies by a cockpit instrument, activated by a radio beam, that tells him whether he is too high, too low, too far to the right or left of the glide path. First thing the pilot knows, the runway stretches before him. CAA has done it again. E.P.

UMI

PHOTOGRAPHS BY CIVIL AERONAUTICS ADMINISTRATION

CAA—Aviation's Sentinel

IT'S a hazy day at Washington's National Airport. A Convair trundles to the end of a runway, runs up its engines, then bullets forward and into the air. By the time its wheels are tucked away, it has faded from sight. Safely behind it a big Constellation materializes, whispering in over the Potomac River, flaps down, wheels reaching for the now vacant runway. Visibility is scarcely a mile, yet air traffic at one of the world's busiest airports flows smoothly, briskly, and safely. It's as though these were puppet planes, guided unerringly by a giant manipulator.

The fingers on the puppet strings belong to the Civil Aeronautics Administration, a sprawling branch of the Department of Commerce. On June 23, it celebrates its 20th birthday.

It's CAA's primary job, air traffic control, that keeps the runways busy at Washington and other airports, even in poor weather. To learn the secret, place yourself in the airport tower, above, looking out through green-tinted windows at the crisscrossing runways. A handful of CAA controllers sit or stand before a tilted desk studded with microphone switches. A long row of loud-speakers face them. Radio voices hammer at them in a confused babble, yet the controllers distinguish one message from another and calmly answer all.

One plane is granted permission to taxi to the take-off strip by the ground controller. He is also in contact with vehicles on the ground. Another man, the local controller, has authority over planes in the vicinity of the airport. Right now he's telling a DC-7 to circle southeast of the field until his turn to land. At the same time, he's watching a Viscount whistle off the strip just as a small private plane lands a safe interval behind it. Ground controller calls the private plane to taxi off the runway, but the pilot's receiver has gone dead. Immediately, the controller pulls down one of the spotlights hanging from the tower ceiling. He

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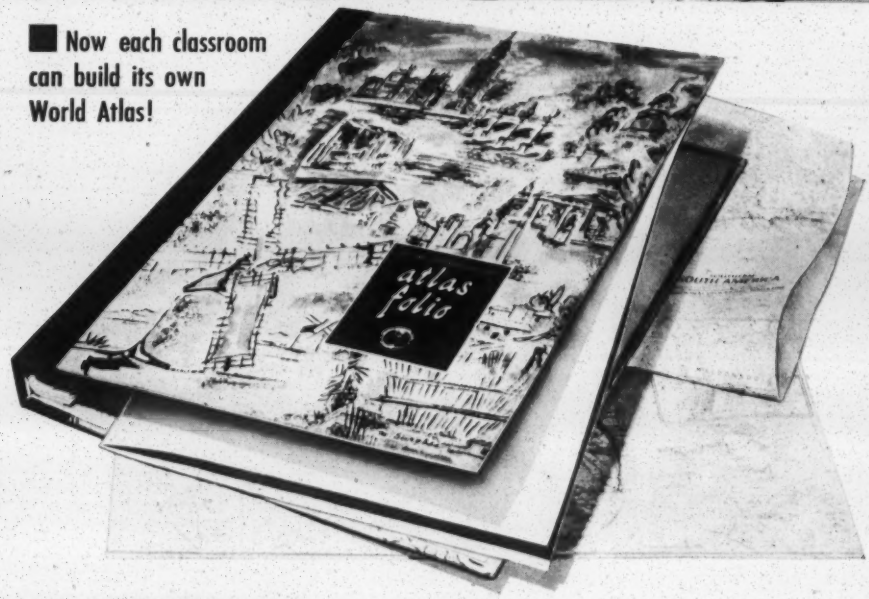

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